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AUTHOR Parette, Howard P., Jr.; VanBiervliet, Alan
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ABSTRACT

The instructional package of student and instructor manuals is intended to provide Arkansas college students who are preparing for rehabilitation careers with basic information on assistive technology. The student material is divided into three goal areas. The section on Goal 1, the development of technology advocacy concepts, covers basic definitions of assistive technology and services terminology, the role of consumers, advocacy, specific advocacy groups in Arkansas, steps in the advocacy process, and how a consumer should respond when told assistive technology cannot be provided him. The second section on Goal 2, the development of service delivery concepts, discusses providers of technology services in Arkansas, the evaluation process, and factors in selecting appropriate technology. Goal 3 is the development of technology funding concepts. Discussion centers on funding sources, funding terminology, and guidelines for assembling supportive documents. Each section includes a set of student evaluation questions for which answers are provided in the instructor manual. (DB)

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Assistive Technology Curriculum

... A Module of Instruction for Students in Arkansas Colleges and Universities

Prepared by

Howard P. Parette, Jr., Ed.D.
Alan VanBiervliet, Ph.D.
University of Arkansas at Little Rock

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Partnerships in Planning for State Technology Service Delivery

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Table of Contents

Student instructions..... 1

Goal 1: To Develop Technology Advocacy Concepts

Assistive technology..... 2
Assistive technology services..... 2
Co[illegible]ers..... 3
Appropriate technology..... 3
Advocacy..... 3
Advocacy groups in Arkansas..... 3-4
Steps in the advocacy process..... 4-8
When you are told no..... 8-9
Student evaluation questions..... 10

Goal 2: To Develop Service Delivery Concepts

Providers of technology services..... 11-21
The evaluation process..... 21-22
Factors in selecting appropriate technology..... 22-28
Student evaluation questions..... 29-30

Goal 3: To Develop Technology Funding Concepts

Funding sources..... 31-38
Funding terminology..... 38-40
Assembling supportive documents..... 40-43
Student evaluation questions..... 44-45

Student Instructions

Format. The format for this technology curriculum is designed such that the student can complete the module of instruction in 2-3 class sessions.Three goal areas form the core of the curriculum. Goal 1 focuses on the development of technology advocacy concepts. Goal 2 addresses technology service delivery concepts. Goal 3 focuses on funding concepts. Each goal section is organized in the following manner. First, objectives for the goal area are specified. Second, the objectives are followed by an information base which corresponds to each objective specified at the beginning of the section. Third, at the end of each goal section, a set of student evaluation questions is presented. Test questions address the objectives specified at the beginning of each goal section. Students should await instructions regarding completion of the test of student information.

Resource Materials. Four Guides have been developed for use with the curriculum, each focusing on a particular target audience: parents, infants, work-age individuals, and the elderly. The use of these guides as supplementay resources in completing the module of instruction is strongly encouraged to increase the student's information base, though they are not necessary to complete the tests at the end of each goal section. The instructor may require the student to complete reading assignments in these Guides.

Turn to the next page to begin curriculum module

Goal 1: To develop technology advocacy concepts.

1.1 *Objectives:*
On a written test of student knowledge, the student will:
- ❒ **define assistive technology;**
- ❒ **define assistive technology services;**
- ❒ **define 'consumer';**
- ❒ **define appropriate technology;**
- ❒ **define advocacy;**
- ❒ **identify advocacy groups in the state that can assist persons with disabilities in securing technology;**
- ❒ **identify important steps in the process of advocacy; and**
- ❒ **identify questions that are important to ask when funding is denied.**

1.2 Student Information Base

❒ ***Assistive technology.*** Any device or tool, whether purchased off the shelf, modified, or customized, which can help persons with disabilities in their daily life activities may be thought of as "assistive technology". There are many types of assistive technology which are changing the way in which all people live and work. Wheelchairs, computers, special utensils for eating, and devices that control heating, cooling, and lighting are just a few of the many devices and tools that are considered to be assistive technology.

❒ ***Assistive technology services.*** There are services which are related to assistive technology that are important because they cannot be separated from the technology itself. Neither the technology nor the assistive technology service can exist by themselves. Both are necessary in the lives of persons with disabilities . Evaluations are conducted to determine the strengths and weakness of a person with a disability. Companies rent or lease equipment to people. People look at the many different types of technology which are available and make decisions about what is best for a person with a disability. A local carpenter or welder adapts or customizes a piece of equipment. A physical, occupational, or speech therapist uses special exercises with the person with a disability. A vocational counselor shows the person

how to use an adapted computer keyboard to operate a machine in a work setting. In each of these cases, a service is provided that can help the person with a disability to select, obtain, or use a technology.

❒ ***Consumers.*** A consumer may be defined as anyone who is affected directly or indirectly by the service delivery system. This will include persons with disabilities, their families, people who have received services from anyone in the system in the past, persons who may receive services in the future, and persons who represent the best interests of persons with disabilities.

❒ ***Appropriate technology.*** The expression "appropriate technology" means that the device, equipment, or service meets the person's needs. This is the single most important characteristic of appropriate technology for persons with disabilities.

It is important for all persons to examine many different types of technology and decide which would be most appropriate for the person with a disability. Other factors have to be considered including personal factors, characteristics of the technology, the cost of the technology, and the source of the funding.

❒ ***Advocacy.*** Advocacy is a special type of problem solving. It is problem solving to protect the rights of the person with a disability and to improve the quality or amount of technology-related services that the person is provided. This may include problem situations with Medicaid or welfare benefits, education, accessibility, housing, employment, residential placement, medical services, or transportation.

In order for a consumer to get appropriate technology to meet his or her needs, professionals and others sometimes have to use advocacy skills. There are many different types of advocacy, but the most frequently employed type used in getting needed technology and related services is individual advocacy. This means the use of advocacy skills that help the consumer to be less dependent on others in getting the technology and related services that he or she needs. When the professional helps the consumer to know what his or her rights are regarding technology, and helps the consumer assert those rights, the person will be seen as being powerful by others and treated with more respect. This will, in turn, help the person get services that are needed.

❒ ***Advocacy groups in Arkansas.*** There are many groups and organizations in the state which can help persons with disabilities get needed technology. Since the field of technology is a relatively new one, there has not been a great deal of advocacy activity across the state designed to specifically help people obtain technology. Many

groups can provide information and training to consumers, but there is only one agency that is active at many levels in protecting the rights of persons with disabilities. The following provides a desciption of this important agency.

Advocacy Services, Inc. One of the most important agencies which has helped people get needed services is Advocacy Services, Inc. (ASI). This agency is designed to protect and maintain the legal and civil rights of people with disabilities, including helping them get needed technology and related services. Persons who can receive help from this agency include those with developmental disabilities, clients or client applicants of the Division of Rehabilitation Services, or persons with mental illness in residential facilities or who have been discharged within 90 days.

ASI provides a range of services that can be used to help a person with disabilities get needed technology and services. These include advocacy, legal, legislative, and training services. The kinds of advocacy services provided by ASI includes investigation, intervention, or negotiation on behalf of the person with a disability who needs technology or related services. Information on, or referral to, a more appropriate agency that can help the person get needed technology and services is also included if necessary.

Legal services which are provided by ASI include technical support to attorneys who may be working for the person with a disability, referring persons to attorneys who are familiar with disability law, contributing to training workshops and seminars about the legal aspects of technology service delivery, and, when appropriate, providing direct legal representation in cases that involve the need for technology and services.

Legislative services that are provided includes the review and tracking of legislation which can affect technology service delivery. ASI will also provide information to persons about laws that are being considered by the state legislature which affect technology service delivery. Finally, ASI staff can provide training, workshops, and presentations regarding their services, the process of getting needed technology, or the legal rights of persons with disabilities who need technology and services.

❒ ***Steps in the advocacy process.*** There are a number of steps in the process of being an effective advocate, and using advocacy skills to get needed technology and services.

Step 1: Rights. The first step in the advocacy process is for the person with a disability to be aware of his or her rights. There are a number of rights which relate to technology and services. These include:

• **The right to information about devices and services available.** Consumers have a right to be given information about technology and related services in the state, and the right to get that information.

• **The right to advocacy for needed technology and services.** Consumers have the right to expect agencies and schools to help them get needed technology. Consumers also have the right to do all that they can do to get needed devices.

• **The right to honest answers about evaluations, testing, meetings, and any activities which affect the person's ability to get needed technology and services.** Consumers have the right to get honest answers about the their technology needs from professionals. This includes information about the results of evaluations, recommendations made by professionals following these evaluations, and other information about their technology needs.

• **The right to independence using technology.** Technology is a way to secure more independence by making consumers less dependent on other people. The right to independence for consumers with disabilities can be seen in no less than 35 state and federal laws. Independence should be the cornerstone for decisions made regarding technology for the consumer.

• **The right to due process in getting needed technology and services.** This includes the right to receive notice about decisions made about the consumer's technology, the right to a hearing to protest these decisions, the right to be represented by an advocate in that process, and the right to appeal the decisions of the hearing.

• **The right to disagree with professionals who are involved in making decisions about technology and services that the person can receive.** Since consumers have the right to be involved in decisions made about their technology needs, they also have a right to disagree with decisions which they feel are not in their best interests. Sometimes misunderstandings will occur when consumers disagree with professionals. This problem can be avoided often if both consumers and professionals keep their discussions on the issues of technology needed by the consumer, and not allow feelings to enter into the discussions. However, consumers and professionals should remember that the consumer's needs are most important. Opinions can be presented in a way that will not cause hurt feelings.

- **The right to have feelings.** All consumers have a right to feelings about technology that they would like to use. We all have choices for buying goods and services. Technology is no different.

Facilitating an awareness of these rights gives the person with a disability a stronger position from which to work to get needed technology and services in the state.

Step 2: Letting professionals know about needs. In order for persons with disabilities to be effective advocates, professionals must help them to express their technology and related service needs to others. Whatever the need is, whether it is a need with dressing or eating, going to the bathroom independently, using numbers for mathematical calculations, or grasping and holding small objects, the need must be clearly stated to others. It is important to state whether the need the person has is an ongoing one, or whether it is one that is worse at particular points in time. Consumers can help professionals to make decisions about their technology needs in a number of ways. If the consumer has received services from any agency including the school, he or she may ask to look at their case file and get important information. Under the *Family Educational and Privacy Act of 1974*, consumers have the right to ask for and get copies of their records.

It is important to know something about the laws which can affect whether or not technology can be provided to the consumer. Few people know all the laws which are important for the consumer with a disability. However, it is important to know where to get this information. Consumers should contact Advocacy Services, Inc. at 1-800-482-1174 or (501) 371-2171 to find out what their rights are under the laws. Information about specific laws and how they affect funding for assistive technology is discussed in the third section of the instruction module (pp. 31-37).

Consumers should also try to get to know the people who make decisions about the technology that they may receive. Names, addresses, phone numbers, and other information about the people involved is *important* since consumers may have to talk with many persons at the agency to get needed technology.

Talking with professionals is very important. To be successful in talking to professionals, consumers should look at the skills that they have in "assertiveness", or how skillful they are in getting things done, and getting things that they need for themselves. Consumers have to be assertive to present their needs in a way to get the things they need for themselves. These skills include:

- **keeping eye contact when speaking and listening;**

- **keeping good body posture when speaking;**
- **using facial expressions to make needs known;**
- **using hand and body gestures when this is proper; and**
- **changing the tone of voice while speaking.**

It is also important to express an understanding of things which professionals say to the consumers, and to ask questions. These important skills tell the person with whom consumers are speaking that they are prepared, that they are serious, and that they are listening to what is being said. If it is felt there are problems in any of these areas, consumers should make an effort to develop these skills. Advocacy Services, Inc. can help consumers develop these skills.

Sometimes difficult terminology, or jargon, is used when professionals are speaking to consumers. When this happens, consumers should ask professionals to explain the meaning of the words they are using. It is not reasonable for anyone to expect consumers to understand all terminology used by professionals, so they should not be afraid to say "I don't know,""I don't understand,"or "Can you tell me what you mean by ____?"

Consumers should not get trapped into giving ultimatums such as "If you don't _____, then I'll have to _____." People do not like being told that they must "have to do something", or that they must "take something or leave it." Generally, these types of statements make the task of getting technology for them more difficult.

If ultimatums are given to the consumer, the person should ask the professional questions such as what other things were considered. They should also suggest other things that can be done. Lastly, the consumer should ask if there are alternative solutions other than what the professional has indicated.

Consumers should also know what the criteria are to receive services from various agencies. If the consumer does not meet the eligibility criteria for a particular agency, they should try to find out what can be done to get services from the agency. Consumers should inquire about information needed to be considered for services by the agency, as well as ask about how to apply for services. Finally, the consumer should get information about the appeal process if they are denied services.

Step 3: Keeping records. When making telephone calls to agency personnel, consumers should make notes of names, telephone numbers, and information given by the persons with whom they speak. Letters which are written and received and records that consumers obtain can be very important. These notes, letters, and records should be kept, including any information that is obtained in a folder for later use. Consum-

ers should also ask for a written statement of any actions taken by agencies or schools that affect the student. They should also get written statements of when actions or services are to begin.

Step 4: Follow-up. Follow-up is important to see that the needed services are being given. Consumers should look at what technology and services the agency or school is giving to the consumer and how often the services are provided. If there are other needs that the consumer has, or if there are problems, the consumer can use their advocacy skills to try and get the technology and services that are needed.

When you are told 'no'. When consumers are told that assistive technology cannot be provided to them, they must get information about why the technology cannot be provided. Consumers should give thought to the following concerns followed by asking others three specific questions:

- **Has the consumer obtained information about what Arkansas law and regulations require? (to receive funds, a state must provide certain services and follow specific procedures)**
  Question to ask: ***Is it a state law?***

- **Has the consumer determined what choices Arkansas has as determined by law and regulations? (Arkansas selects from a menu of service options, and who will be eligible for services)**
  Question to ask: ***Is it a state policy?***

- **Has the consumer determined what is not required by law, but what has become a custom or practice in Arkansas based on decisions made**
  Question to ask: ***Is it simply custom or local current practice?***

[Note: These materials have been excerpted from: Morris, M. W. (1990). *Assistive Technology Funding. A User Friendly Workbook.* (Developed in cooperation with the RESNA Technical Assistance Project and United Cerebral Palsy Association, Inc.). Washington, DC: RESNA Technical Assistance Project, p. 7]

Each of these questions is of critical importance. Consumers who have information about laws and policies will be adequately prepared to make changes in the local service delivery system by being more informed. Consumer interest, expecta-

tions and advocacy when organized can change laws, policies, and practices. A director or supervisor may have the authority to make changes at the local or state level. Changing laws or regulations will take more time and need the support of many individuals and groups with similar interests.

One way to become informed about what the state is required to provide is to read the various state plans that are developed by state agencies receiving funding from the federal government. Most federal laws which provide funds to states require that those states receiving funds to submit a state plan for approval by the federal agency. Each federal law will list requirements to be met by the state and to be described in the state plan. Consumers should request copies of these state plans, such as those developed by the State Department of Education, Division of Develomental Disabilities Services, and Division of Rehabilitation Services. Once copies are obtained they should be reviewed to determine how the state intends to implement federal laws that provide funds for persons with disabilities.

Having completed the reading material in the first section of the technology curriculum, the student should complete the questions on the handout provided by the course instructor.

Turn to the next page ☞

Goal 1 Student Evaluation Questions

1. Briefly define the term "assistive technology."

2. If you were asked by a person with a disability to define "assistive technology services", how would you describe them? What are some examples?

3. You are discussing the selection of appropriate technology with a person who has a physical disability. This person states that his powered wheelchair, though operative, is not as attractive as a more costly wheelchair. What are some important considerations that you might discuss with this person to help him understand the broader meaning of appropriate technology?

4. Advocacy has been described as an important skill for persons with disabilities to have in order to ensure the provision of appropriate assistive technology to meet their needs. What are the four key components of this process?

a.
b.
c.
d.

5. Though there are many groups in Arkansas which are involved in advocacy activities for persons with disabilities, which of the following appears to be most active? (circle one)

a. Association for Retarded Citizens
b. Arkansas Easter Seal Society
c. Advocacy Services, Inc.
d. Arkansas Spinal Cord Commission

6. When a person with a disability is told that funding cannot be provided by a particular agency, what are some important questions that should be asked?

Goal 2: To develop service delivery concepts.

2.1 *Objectives:*
On a written test of student knowledge, students will:
- ❒ **identify important providers of technology services in Arkansas;**
- ❒ **identify components of the Arkansas Technology Access Program;**
- ❒ **state the importance of the evaluation process in getting technology and services; and**
- ❒ **identify important factors in selecting appropriate technology.**

2.2 Student Information Base

❒ ***Providers of technology services.*** There are a number of important providers of technology and related services in Arkansas. These providers include both state and private agencies and organizations. These sources of funding for technology will be discussed in detail in the next section. However, some of the important sources for technology funding that everyone working with persons with disabilities should be aware of include the following:

Arkansas Technology Access Program (ARTAP)

ARTAP is a statewide system of technology-related assistance. It was created by a grant from the federal government and is sponsored by the Division of Rehabilitation Services. ARTAP is made up of several components, each of which provides persons with disabilities and their families with special types of technology-related services.

Basically, ARTAP is made up of a centralized technology information system, five technology access centers (TACs), an Equipment Exchange Program, a User to User network, and regional technology specialists as shown in Figure 1. The various components of ARTAP are described below.

Arkansas Technology Information System (ARTIS). The University of Arkansas at Little Rock developed and will maintain ARTIS. This is a consumer-responsive statewide system of information, storage, and retrieval enabling *all* Arkansans to

get information about assistive devices and services. This system has a number of important goals which include making information available to all persons regarding technology and services, conducting training, marketing the system on a statewide basis, improving cooperation among agencies, developing a User-to-User network, creating a system of regional technology specialists to act as resource persons in local communities, and creating an equipment exchange program of used assistive devices. ARTIS developed a publicly distributed database containing this information that will be accessible to all persons. The system outputs information in print, large print, Braille, and auditorily.

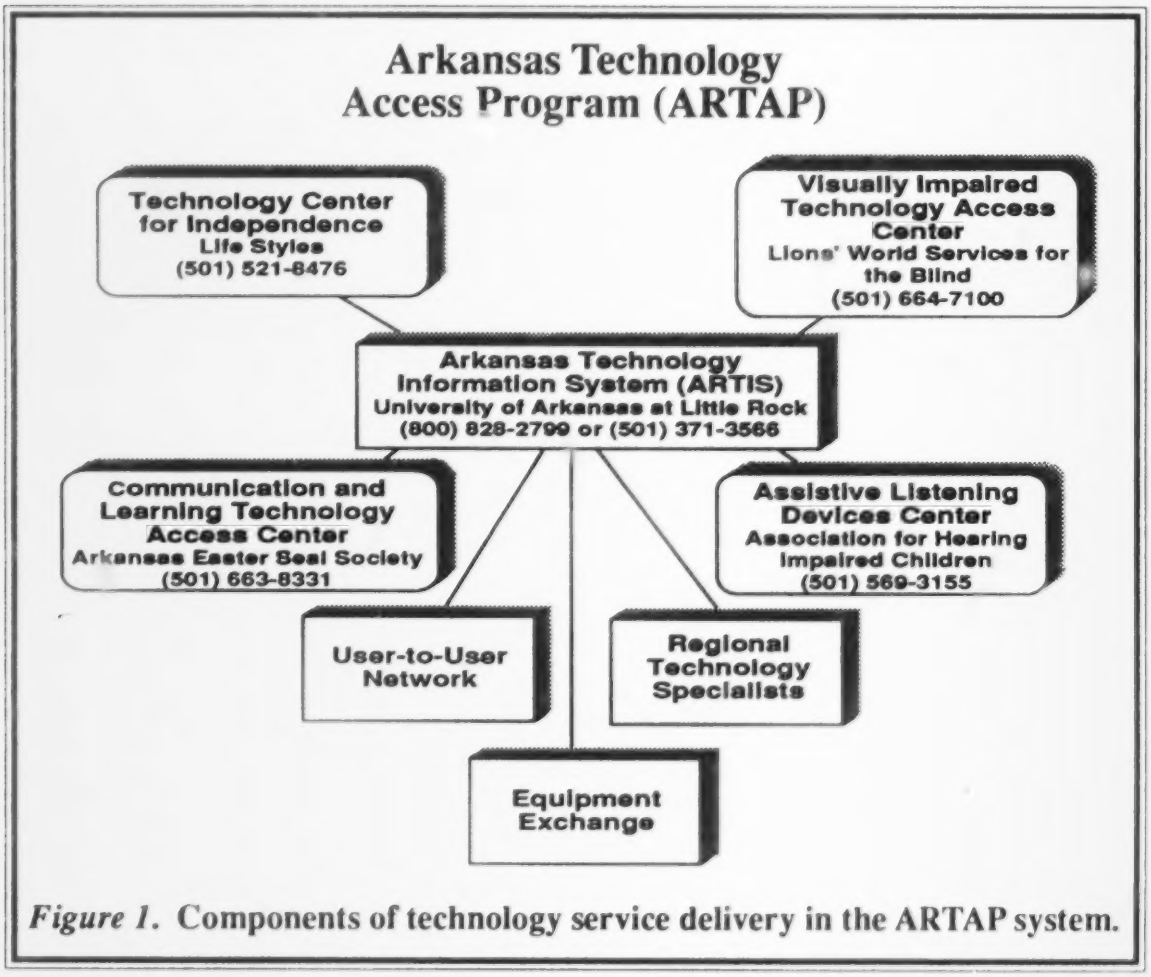

Figure 1. **Components of technology service delivery in the ARTAP system.**

Technology Access Centers (TACs). Five TACs have been developed as part of the ARTAP system, each providing specialized technology-related services in one of the following areas: visual impairments, hearing impairments, cognitive and

language development, communication, and independent living. The TACs serve persons *of all ages* and *all disabilities*. TACs are designed to freely provide information and hands-on demonstration concerning targeted technology devices and approaches to consumers, parents, employers, business, and the general public. The TACs also provide and participate in training activities concerning technology and awareness and provide technical assistance to consumers, professionals, and policymakers. Additionally, TACs provide formal evaluations/assessments and other services, such as therapy and device construction, for a fee. The TACs maintain a record on a database of the technology information resources which it possesses, and this database is shared with the ARTIS, other TACs, and persons across the state concerned with technology access. Each TAC established an advisory board with at least 60% representation by persons with disabilities and their families. A description of each of the TACs follows.

- ***Communication and Learning Technology Access Center***

The two TACs in Communication and Cognitive and Language Development were developed by and will be maintained by the Arkansas Easter Seal Society. The Communication TAC focuses on augmentative communication and related types of technologies for non-speaking persons, as well as access to computer equipment. The Cognitive and Language Development TAC serves persons having learning disabilities, head injuries, and other types of learning and language problems. This TAC provides information, demonstrations, and training on software for word processing, mathematics, and related technologies.

- ***Assistive Listening Devices Center***

The TAC for Deaf and Hearing Impaired was developed by and will be maintained by the Arkansas Association for Hearing Impaired Children (AAHIC). This TAC provides information, hands-on experiences, training, and assessments in assistive devices for persons with hearing impairments. Examples of such technologies include signalling systems, telephone amplifiers, hearing aids, amplification systems, speech training aids, manual sign training computer programs, and telecaption equipment.

- ***Technology Center for Independence***

The TAC in Independent Living was developed by and will be maintained by Life Styles of Fayetteville. This TAC will focuses on technologies that will assist *anyone with a disability* to function more successfully in the community. It provides in-

formation, hands-on experiences, training, and assessments on assistive technologies concerned with home management, personal care, home modifications, architectural modifications, home health, and recreation.

- ***Technology Access Center-Visual Impairments***

Developed cooperatively by several agencies led by Lions' World Services for the Blind, this TAC provides information, hands-on experiences, training, and assessments on assistive technologies for persons with visual impairments. Examples of these technologies include auditory and tactile time and temperature aids, talking file storage, electronic sensing devices, navigation aids, and tactile Braillers.

Arkansas Children's Hospital (ACH)

This private, non-profit institution is the only pediatric medical center in Arkansas, and is the seventh largest in the country. Though all departments and clinics are interrelated, there are several service components that have particular relevance to persons with disabilities 0-21 years of age who have disabilities.

- ***Audiology Department***

The Audiology Department provides comprehensive audiological services with a strong emphasis upon infant assessments. Testing for hearing aids, prescriptions for assistive devices, and referrals to other service providers are principle activities.

- ***Speech Pathology Services***

This diagnostic service component focuses specifically on evaluations and treatment of a variety of speech and related disorders. The department refers children with disabilities to other agencies that provide needed technology services. Pre-augmentative communication skill training is provided, as well as training in the use of adapted switches. Computer training is additionally given to a limited degree.

- ***In-Patient Rehabilitation Clinic***

The Pediatric Habilitation Clinic provides comprehensive specialty medical services for children, adolescents, and young adults and their families with physical disabilities. Multidisciplinary evaluations and treatment is available, with a particular emphasis on assessments, referrals, and seating evaluations.

- ***Habilitation Outpatient Clinics***

Services provided on an in-patient basis in the Habilitation Clinic are also provided to persons with disabilities on an outpatient basis.

- ***Progressive Care Unit***

This is a highly specialized pediatric and adolescent acute rehabilitation unit offering all aspects of treatment serving persons in need of acute rehabilitation after trauma. It is also available to persons with a wide range of disabilities. Treatment is provided in a comprehensive and coordinated manner, including such services as evaluation and prescription of orthopedic devices and other equipment, physical and occupational therapy, and augmentative communication evaluation and prescription.

- ***Rehabilitation (Occupational Therapy)***

The Occupational Therapy Department evaluates and treats children with physical disabilities, developmental delays, perceptual-motor problems, and oral motor difficulties. The primary services offered are seating evaluations (including modifications and fabrications), splinting, determining adaptive equipment needs, feeding, developmental training, and instructions in daily living. A computer play center has also been developed in cooperation with the Junior League of Little Rock. This center provides a variety of opportunities for children with physical disabilities to use computer technology.

Arkansas Easter Seal Society

This private organization provides a wide range of technology-related services to consumers with disabilities across the state.

Early Intervention Program and Preschool. This program provides assistance in equipment construction and loans adaptive equipment, loans adative toys, and provides computer training to children with disabilities 0-5 years of age. Physical and speech therapy is also provided.

Residential Center for Orthopedically Impaired Children. Children with physical and motor impairments referred from school districts can be provided with technology-related services at the residential center. The primary emphasis of training activities provided is computer usage and augmentative communication strategies. Occupational and speech therapy are also provided.

ArkansasTechnology Resource Center. This Center is a member of the National Special Educational Alliance and provides a range of services to persons with disabilities through a variety of programs. These include the following:

- ***Computer Evaluation Project***

This program is designed to evaluate the ability of vocational rehabilitation clients to use computers. Services also include development of alternative access strategies, training in the use of computers and referral to appropriate local, state, and national programs, agencies, and professionals.

- ***Technology Access Centers***

Two specialized technology access centers (TACs) for technology-related services of the Arkansas Technology Access Program (ARTAP) are housed within the Arkansas Technology Resource Center. These include a TAC for communication and a TAC for language and cognitive impairments. A description of the types of services provided is noted in the previous description of ARTAP.

- ***IBM's Offering for Persons with Disabilities***

Hands-on experience in using IBM hardware and software programs for the computer are available to persons with disabilities. This program provides computer evaluations and prescriptions, and if the person wants to purchase an IBM, he or she may do so at discount prices.

- ***Augmentative Communication Services***

This program provides evaluation, training, and support services to children who are unable to speak. Training is also given to therapists and teachers in the use of augmentative communication strategies.

- ***Lending Library***

A library consisting of books, equipment, videos, and software is available to parents, persons with disabilities, and professionals.

- ***AppleLink***

Through the AppleLink system the Arkansas Technology Resource Center is electronically linked with other national technology centers, companies that sell technology, and other experts. Parents, persons with disabilities, and professionals

may use this system to get quick responses to technology questions from people across the country.

Operation Outreach. Outreach is an evaluation and consultation service for students with orthopedic handicaps. It operates through a team consisting of an occupational therapist, speech/language pathologist, adaptive physical educator, and a special education teacher who travel to local school districts across the state on request. Technology support includes computer and augmentative communication training, as well as consultation in seating/positioning, self-help, and leisure equipment adaptations. Recommendations are also provided regarding how to develop technology-related programs.

Baptist Rehabilitation Institute (BRI)

This 192 bed facility is a comprehensive rehabilitation hospital, complete with the most modern inpatient and outpatient equipment available. A full range of individualized evaluation and services is offered to persons with disabilities. After an initial evaluation, an individualized program is designed for each patient. Components of the program may include physical therapy, occupational therapy, psychology, rehabilitation nursing, therapeutic recreation, respiratory therapy, medical social work, orthotics, prosthetics, and speech/language pathology.

Programs relating to technology offered through BRI include the following.

- ***Amputee Program***

Professionals work with persons having upper extremity amputations in the use of their myoelectric prostheses, provide positioning equipment for positioning persons having lower extremity amputations, and provide adaptive equipment to meet individual patient needs/goals.

- ***Arthritis Program***

BRI staff fabricate splints to correct or prevent deformities in patients. They also develop adaptive devices for persons with disabilities necessary for grooming, toileting, household tasks, and meal preparation.

- ***Burn Injury***

Professional staff participate in the development of splints, and develop silicone elastomer inserts to decrease scarring for burn victims.

- ***Chronic Obstructive Pulmonary Disease***

Staff provide adaptive equipment focusing on home management and activities of daily living for persons with disabilities.

- ***Chronic Pain Management***

In this program, each person's pain is assessed and a multi-facted treatment program is devised, aimed at increasing functional abilities and decreasing discomfort. Treatment may include relaxation training, rehabilitative exercise, psychological counseling, vocational counseling or medication management.

- ***Head/Brain Injury Program***

Special services offered to persons recovering from head/brain injuries include self-care and individual exercise training, speech/language pathology retraining, community re-entry training, vocational rehabilitation, adapted driver training, and wheelchair mobility and therapeutic recreation.

- ***Neuromuscular Disease***

This program emphasizes the development of communication devices for persons with severe impairments. BRI staff work with environmental control units designed to help persons achieve independence in daily living activities. They also provide seating equipment and modifications to position persons in wheelchairs.

- ***Orthopedic Problems and Joint Replacement Rehabilitation***

The provision of adaptive equipment for home management and activities of daily living is a primary technology-related activity in this program.

- ***Spinal Cord Injury***

This program offers services from inpatient rehabilitation through community re-entry. Specific components of the program include self-care and individual exercise, an educational program that addresses specific issues and concerns for persons with spinal injuries, community re-entry training, vocational rehabilitation services, adapted driver education, wheelchair mobility training, and therapeutic recreation.

- ***Stroke Program***

Special services offered to persons recovering from strokes include the same components as that in the head/brain injury program.

College of the Ozarks

The Harvey and Bernice Jones Learning Center at this institution of higher learning houses the Ben D. Caudle Learning Program, the first of its kind in the world. The Learning Center is specifically designed to help college-age students with specific learning disabilities such as dyslexia, dysgraphia, dysorthographia, and dyscalculia. The introduction of a "learning strategies" program within the Center's curricula provides the opportunity for students to learn to become independent in reading and writing skills. Thus, they do not just use technologies (e.g., taped books and lectures), but are taught specific learning skills which will generalize so that the student can participate more fully in all aspects of college life and be more salable in the job market. Diagnostic testing and intensive support services are provided to all students designed to meet each person's special needs. These support services include: extended time testing using dictation or computer technologies; textbook taping; typing services; and computerized study skills modules covering such areas as time management, and notetaking.

New Medico Rehabilitation Center at Timber Ridge Ranch

This is a residential facility offering post-acute rehabilitation services to persons who have sustained brain injuries. Services are directed toward optimizing each person's functional skills in the areas of communication, cognition, behavior and emotional control, physical functioning, and vocational competitiveness. Specific services which are offered that relate to technology include the following.

- ***Coma Intervention***

Through New Medico's coma intervention services, patients receive a regimen of sensory stimulation from an interdisciplinary team of head injury specialists.

- ***Community Re-Entry and Vocational Programs***

This program offers persons with disabilities intensive life skills training that is critical for independence, with an emphasis on self-care activities of daily living, cognitive and communication skills, social skills, and physical mobility. The vocational program provides vocational assessment, prevocational training, and job skills training. It is designed to develop job placements through a supported employment model and community living options.

- ***Assessment***

In addition to the ongoing assessment that is central to all programs offered at the center, a short-term assessment is available to persons not involved in a full rehabilitation program. Each person's abilities and potential for growth are assessed by a variety of specialists under the direction of a neuropsychologist.

- ***Supervised and Independent Living Services***

Long-term and short-term residential options are available to persons with disabilities. Specially equipped apartments, townhouses, and group homes are located in both suburban and metropolitan neighborhoods, as well as on the grounds of the facilities. Supervision and assistance are provided by personal care attendants available around-the-clock or as needed. Support services are also available to those persons living on their own and therapy may be provided in the residence if needed.

- ***Day Treatment/Outpatient Services***

For persons with disabilities who are living on their own but who have specific rehabilitative needs, this program offers individual outpatient services as well as full day treatment programs.

- ***Pediatric and Youth Services***

Programs providing pediatric and youth services incorporate physical therapy, occupational therapy, speech therapy, behavior management, cognitive therapy, special education, psychological counseling, and recreational therapy. In addition to having created specific learning environments at the facility, cooperative agreements have been initiated with other school districts to integrate children with head injuries into regular classroom settings.

- ***Respiratory Programs***

New Medico provides extensive services related to mechanical ventilator management, artificial airway management, and respiratory therapy. Mechanical ventilator management includes regular monitoring, arterial blood gas testing, and ventilator alarm system mainteance. Many persons learn to use portable ventilators as they reach an appropriate level of functioning.

Division of Rehabilitation Services

Thousands of consumers who are of working age in Arkansas receive technol-

ogy-related services through the Division of Rehabilitation Services (DRS). This state agency is directed toward helping persons with disabilities to fulfill their intellectual potential for employment through education and training so that they may become self-supporting and self sufficient. Specific services which are provided through this state agency include: (a) assessment; (b) education; (c) training; and (d) purchase of equipment. Interpreter services, note-taking services, reader services, telecommunications would also be included if a consumer is in need of such services. Technology services received by consumers through DRS are provided as a function of need.

Office of Disabled Student Services

Sponsored by the University of Arkansas at Fayetteville, this office plays an important role in providing equal access for university students to the administration, faculty, and all aspects of campus activity. Special services are available to all students having a certified disability, and may include such things as taped texts, readers, notetakers, special testing conditions, and priority registration. Tutoring is also provided to students having physical and learning disabilities.

Veterans Administration

Consumers who receive technology services through the Veterans Administration (VA) must be veterans of military service. Many departments exist within the VA, and technology services which are provided range from artificial limbs and related equipment to specific rehabilitation services, such as speech, physical and occupational therapy.

Other Agencies and Organizations

It should be remembered that there are many different groups in Arkansas that are providing different types of technology-related services. Many of these groups are involved primarily in funding and will be considered in the next goal section. To get information about existing technology service providers and funding opportunities, consumers and professionals should contact ARTIS and the various TACs in Arkansas.

❒ ***The evaluation process.*** Before persons with disabilities are provided with technology and related-services by agencies or other groups, an evaluation is usually conducted by a professional. This might be a speech therapist, an occupational therapist, a physical therapist, a teacher, a vocational instructor, or a physician. The

evaluation should look at what the consumer can do in many different environments, such as the home, the school, the work setting, or other places.

The evaluation is important because it can help select technology that can be used by the consumer. It must be remembered from the previous discussion, that there are many different types of technology which may be available to meet the needs of a person with a disability. The results of the evaluation help to identify what the consumer needs, and provides a reason for buying the technology. As an example, a speech pathologist may conduct an evaluation on a consumer and recommend that the person receive a special communication device. A doctor, or physical therapist may conduct an evaluation and recommend that a wheelchair be provided to the consumer. In each case, important information is made available that helps people to make decisions about what technology is required to meet the consumer's special needs.

❒ ***Factors in selecting appropriate technology.*** Once an evaluation is conducted to help determine what the consumer's technology needs are, people who are making decisions about what will be provided will have some information upon which to make such decisions. However, other information is also needed. A variety of factors must be given consideration in addition to the evaluation information. These factors can be categorized into two areas: *personal* and *technology* factors.

Personal Factors

• ***Consumer skills.*** It is critical to know what skills or abilities a consumer has before appropriate technology can be selected for them. A complete assessment of the persons's skills across many different areas, e.g., home and daily living activities, self-help, recreation, work, is preferable to examining skills in only one area. The reason for this is that some skills may be used in one area of the consumer's life, and not in others. If only one or a few areas of skills were assessed, important skills in areas not assessed might be overlooked.

Some technologies require much training, or certain physical and mental abilities, to learn to use them. For example, learning to use computers and other devices may call for special training provided by a teacher or vocational job coach. Other technologies are easy to use and can be mastered in a short time. By honestly looking at what the consumer's skills are, it will be much easier to choose a technology that meets his or her special needs.

• ***Consumer needs.*** A need would be any task or activity that the person currently cannot perform that is required to be more independent, or educationally/vo-

cationally successful. Needs include such things as sitting without support, using one's hands to do certain tasks, dressing oneself, using a computer, or speaking words. It is important to know what a consumer's needs are because some technologies will call for certain skills that the consumer may or may not have. Meeting a consumer's current and future needs should be the primary purpose in selecting technology.

• ***Consumer preferences.*** All persons have likes for certain things, and when choosing technology these likes must be considered. For example, a consumer may like to use a manual wheelchair rather than a powered wheelchair. The consumer may want a small device that talks that doesn't call attention to itself rather than a large, difficult to carry device that would cause people to look at the consumer. How it looks, and whether the consumer feels comfortable using the device in public (and in private) are also important considerations in choosing technology. It must be understood that the consumer may have likes that may differ from those of other people who may be involved in making decisions about technology that the consumer will receive. These likes need to be considered during the planning process.

• ***Age and sex of the consumer.*** The age and sex of the consumer may affect decisions about technologies that might be chosen for him or her. For example, if the consumer is a male, he probably would not want a device which talks by using a female voice; a girl would not want a device which talks by using a boy's voice. Also, a teenager would not desire a technology that was designed for young children.

• ***Home and family activities***. Persons involved in decision-making about what technology a consumer may receive must keep in mind the consumer's home setting and family activities in which the consumer may be involved. If the consumer lives in a mobile home, a large, powered wheelchair might not be the best technology for the consumer if doors are not wide enough to allow the chair to enter the home and participate in family activities. If the consumer wishes to attend church, consideration should be given to the demands that would be placed on others in the church setting for the consumer to participate, modifications in the church building that would be needed, and other considerations.

• ***Location of services.*** Since many technologies will be affected by transportation, consumers and others involved in technology decision-making must think about whether technology chosen for the consumer will allow him or her to use this transportation. For some consumers, getting about in the community using public

buses will be important. Some kinds of technology, such as powered wheelchairs, will need space, wheelchair locks, and ramps on buses and other vehicles.

If the consumer is of school-age and has a technology that is needed for him or her to benefit from special education, the school is responsible for providing the necessary transportation. If changes are needed in buses or other vehicles to get the student to and from the school, these changes must be made to meet the student's needs. This would include the use of lifts, ramps, railings, and wheelchair locks. It would also include removing bus seats to make space for students in wheelchairs.

• ***Consumer goals.*** Once a consumer's skills and needs have been identified, goals may be developed which recognize the person's skills and needs. Technologies cannot be chosen to help a consumer attain his or her goals without understanding what the technology is supposed to do. How the device helps the consumer improve their living condition, their ability to complete important tasks, and their ability to be more independent are important goal considerations. If the technology does not help the consumer to achieve their goals, then a different technology should be purchased. When working with an IEP committee, these goals *must be linked to the consumer's school aims*. When working with an IHP committee, these goals *must be linked to the consumer's vocational, daily living, and recreational aims*.

Vocational goals are an important consideration for all persons. Preparing for the world of work begins early in life, and technology should be chosen that will help the consumer obtain skills that will help him or her in later life. Persons involved in making decisions about technology that is appropriate for consumers should give careful thought to the job goals of each consumer, considering how these goals may be completed by using technology. During the planning process, an important question that decision-makers should ask is, *"Will this technology help or hinder the person's job opportunities?"*

Technology Factors

• ***Range of technology.*** There are usually many types of technology designed to help consumers to meet needs at home, school, work and in other places. Before choosing any technology, all persons involved in decision-making should look at as many choices as possible to choose the best technology for the consumer. Then the features of the technology should be compared to the consumer's needs, skills, and the places in which the technology will be used.

• ***Real cost of the technology.*** Some technologies will have to be put together for the consumer before they can be used. For example, a computer system may need to have special wiring put into the home or work site. A powered wheelchair may need special batteries not supplied with the chair. Consumers and other decison-makers should ask about the costs of putting the technology together, taking care of the technology, or changing the technology to meet the consumer's needs.

Sometimes this information is not supplied by those persons who sell the technology. The cost of putting technology together, taking care the technology, or changing the technology is often added onto the cost of a technology *after* a commitment has been made to buy the technology.

Some types of technology, such as those needing batteries, involve ongoing expenses or operating costs. Consumers and others should be aware of these costs before buying any technology.

• ***Consumer ability to use the technology***. Some devices are easy to learn to use while others need much skill, physical ability, training, or practice. The consumer and others should consider all that will be needed for a consumer to learn to use a device.

• ***Dependability of the technology.*** All consumers want the technology they get to be dependable. Does the device work the same way each time it is used? Does it only work like it's supposed to under some conditions? Are there special conditions that must be met for it to work? These questions are important in choosing technology. Some of these questions can be answered if consumers try the technology before buying it.

• ***Ability to move the technology.*** Since consumers often need technology which can be used in many places, how easily the device can be moved to and used in different places is important. When looking at a battery-powered device, for example, consumers should ask about how long the batteries will last under normal conditions. Also, the size and weight of the technology should be given thought if it will be used in many places. Some technologies may be very large or demand much space to be used, and can only be used in a few places, while others can be taken all places and used by the consumer.

• ***Lifespan of the technology.*** All consumers like to find good buys. Sometimes, these good buys are used by persons for a long time. How easily a device can

be broken and whether it can serve the consumer over a long time are important considerations when choosing technology to meet the consumer's needs.

- ***Usefulness with other devices.*** Another important consideration when choosing some technologies is how easily they can be used with other devices. Some wheelchairs, for example, are designed so that other devices can be easily added on; other types of technology may not be so easily changed. Consumers should give thought to both their present and future needs in looking at the ability of the technology to be used with other devices. For example, a device which uses computer speech to talk for a young child may be limited to the use of 50 words. As the child grows older, and the number of words which he or she learns increases, the device should be able to be changed or used with other devices so that more words can be available.

- ***Trying the technology.*** All people like to try things before buying them. If you are buying a car, you would shop around at car lots to get prices and bargain on the sale price with dealers. If a consumer needs a wheelchair, he or she should be able to examine chairs sold by several dealers. Other persons involved in making decisions about technology that will be received by the consumer should be willing to examine several possible alternatives of technologies. Local sales people from companies which sell technology can be contacted and asked to bring the technology to the home or other setting and demonstrate how it operates. Also, the consumer will be able to go to any of the technology access centers which will be set up in the state under the Arkansas Technology Access Program (ARTAP). At these centers, parents and consumers can try out various devices that might be helpful.

- ***Day to day maintenance.*** This includes whether the consumer or others take care of all the things needed to keep the device working, be responsible for cleaning the technology, and do things such as oiling a wheel. Some technologies will need regular repairs and/or cleaning often while others may need to be worked on and cleaned only after a certain amount of time has passed or when it doesn't work properly.

- ***Safe from injury.*** Some technologies may cause injury to a consumer. If the technology is made of a material that is easily broken, the professional, consumer and others should think about whether the broken parts might hurt the consumer if something should happen to the technology. Sharp edges on the technology can also cause injury to the consumer. Technologies which use electricity should be examined to determine if the consumer can be shocked when using the technology, or if it is not

working properly. Other technologies are heavy and can cause injury if they happen to fall for some reason and hit the consumer. Finally, many technologies become soiled easily and can cause infections on the consumer if the technology is close to the skin.

• ***Protection from theft and damage.*** Many technologies that help consumers are quite expensive. Because of this cost, consumers and others should consider whether the person's technology will be safe from theft or damage. If a school, for example, buys the device, they sometimes want the technology to stay at the school and not be taken off school grounds. This is often a policy decision rather than a rule based on law. What consumers should ask is whether the device is covered by a school insurance policy against theft and damage. More than 1/3 of the schools in Arkansas are covered under a state insurance plan that fails to cover the monetary value of equipment in the event of theft or loss. Once the device leaves the school grounds, the consumer or parents may become responsible for the device if something should happen to it. Some schools in Arkansas, however, may have insurance policies that protects technology which is bought by the school and leaves the school grounds with the student. If something happens to the device, the insurance company would pay to have it fixed or buy a new technology.

Consumers who purchase technology that is not paid for by some outside agency, such as the public schools or the Division of Rehabilitation Services, should consider home owners or renters' insurance. Under these plans, a "rider" can be purchased for a few dollars which would pay for a new technology if the consumer's device is damaged or stolen.

• ***Comfort of the technology.*** Depending on the design of the technology, some devices may be uncomfortable to use while others can be used with great ease and comfort. Other technologies can only be used for a short time before the consumer will become tired. For example, some consumers with physical disabilities may not be able to lift their arms or use their fingers to operate some technologies without discomfort. Similarly, a wheelchair that is too small or too large will also affect the comfort of the consumer. If the chair must be operated by hand and the consumer does not have good arm and shoulder strength, the consumer will tire from use of the chair quickly. In any of these cases, careful thought must be given to the physical demands placed on the consumer to operate or use the technology. Again, allowing the consumer to try the technology will be important to get information about the comfort of the technology.

Whether the technology *is likely to cause* physical harm, including bodily

injury or infection, to the consumer is closely related to the concern of physical comfort. Professionals, families, and consumers should give thought to how long the technology will be used and think about what bad effects, if any, it might have on consumers.

• ***Ease of repair.*** Many technologies are made or sold by firms found far from where the consumer lives. When an agency or family buys technology, they must give thought to how the technology will be repaired. Parts for some technologies may not be in stock. This means it will take a long time for the firm to repair the technology. There may be a long waiting list for parts, or the firm may be in a region of the country which would lead to delays and expense in shipping the parts to the consumer.

The consumer and other decision-makers *must* consider where a technology will be repaired before buying it. An effort should be made to find local shops or companies that can more easily repair damaged devices bought from companies found elsewhere in the country. Thought must also be given to whether replacement parts are easily found, whether the manufacturer must make repairs, and what type of warranty is available.

Having completed the reading material in the second section of the technology curriculum, the student should complete the questions on the handout provided by the course instructor.

Turn to the next page ☞

Goal 2 Student Evaluation Questions

Circle the response/s which apply.

1. A person who has a military-related disability who has needs in the area of independent living would probably be provided with appropriate technology services by which group?
   a. Technology Center for Independence
   b. Arkansas Easter Seal Society
   c. Arkansas Children's Hospital
   d. Veteran's Administration
   e. 'a' and 'd'

2. An adolescent with a visual impairment who desires to have hands-on experiences in using technologies designed for such persons might best receive this type of service from:
   a. Veteran's Administration
   b. ARTAP Technology Access Center-Visual Impairments
   c. Division of Rehabilitation Services
   d. Arkansas Easter Seal Society

3. A person desiring to obtain information about IBM or Apple products might contact which of the following?
   a. ARTAP Technology Information System
   b. Arkansas Easter Seal Technology Resource Center
   c. Division of Rehabilitation Services
   d. two of the above
   e. none of the above

4. Which of the following is *not* a component of ARTAP?
   a. User-to-User network
   b. Technology for Independence
   c. Assistive Listening Devices Center
   d. Low Interest Loan Program
   e. Learning Technology Access Center

5. A 19-year-old person with a learning disability desiring to attend college might best receive technology-related services from which group?

a. Harvey and Bernice Jones Learning Center
b. Arkansas Children's Hospital
c. BRI Spinal Cord Injury Program
d. New Medico Rehabilitation Center
e. none of the above

6. A preschool-age child with cerebral palsy having needs for a communication device might obtain evaluation and prescription services from which group/s?

a. Arkansas Easter Seal Society
b. Division of Rehabilitation Services
c. Arkansas Children's Hospital
d. Office of Disabled Student Services
e. 'a' and 'c'

7. What is the importance of the evaluation process in obtaining needed technology for persons with disabilities?

8. Which of the following would *not* be an important personal factor in the selection of appropriate technology?

a. Real cost of the technology
b. Location of services
c. Job aspirations of the person with a disability
d. Home and family activities

9. Which of the following would *not* be an important technology factor in the selection of appropriate technology?

a. Usefulness of the technology with other devices
b. Availability of funding sources
c. Range of technologies available
d. The person's ability to use the technology
e. How the person feels about the technology

Goal 3: To develop technology funding concepts.

3.1 *Objectives:*

On a written test of student knowledge, students will:

- ❒ **identify major sources of funding for assistive technology, including:**
  - **public schools**
  - **Division of Rehabilitation Services**
  - **Children's Medical Services**
  - **EPSDT**
  - **Veterans Administration**
  - **Medicare**
  - **private insurance;**
- ❒ **define appropriate terminology required by funding sources to secure needed assistive technology; and**
- ❒ **identify components relating to the assembling of support documents.**

3.2 Student Information Base

❒ ***Funding sources.*** One of the most important concerns for consumers and professionals alike is funding for technology. Since technology needed to improve the quality of a consumer's life may be very expensive, assistance from outside sources to pay for technology is often necessary. There are a variety of resources for paying for technology in Arkansas. A description of these various funding sources is provided below.

Public Schools

Schools are required to provide school-age students with disabilities a *free and appropriate public education.* This education must be provided in *the least restrictive environment.* These important concepts are established under both state and federal laws. Technology is an important means of guaranteeing that students receive an appropriate education in the least restrictive environment.

There are two main laws through which the public schools may provide technology for students with disabilities. They include the following.

Education of the Handicapped Amendments of 1986 (P. L. 99-47 and P. L. 94-142). This legislation requires that an individualized education plan (IEP) be written for each child with a disability ages 3-21 years who can benefit from special education services. This plan is written by a team made up of professionals, the parents, and the student (when appropriate). Technology may be provided as a "related service". A related service includes such services as occupational, physical, speech therapy, and technology that can help the child to benefit from special education. It is important that the consumer understand that the technology will not be provided as a related service unless it can be shown to help him or her to benefit from special education.

P.L. 99-457 provides for the provision of early intervention services for infants and toddlers (0-3 years). As with P. L. 94-142, language is contained in the law allowing technology to be provided to young children through an individualized family service plan (IFSP) as an early intervention service. This may be through special instruction, speech pathology, audiology, occupational therapy, physical therapy, and health services.

Elementary and Secondary School Improvement Act of 1987 (P. L. 100-297). This law contains a section entitled Programs for Handicapped Children which allows schools to fund assistive technology programs as well as to purchase equipment that would be used to supplement special education and related services (such as occupational therapy, physical therapy, and speech and language services). The purchase of equipment and instructional materials and training in the use and provision of assistive devices and other specialized equipment are listed as possible services to be included in this program.

Division of Rehabilitation Services (DRS)

This state agency provides a range of technology-related services to consumers of working age. Funding for these services is established through a federal law which is described below.

The Rehabilitation Act Amendments of 1986 (P. L. 99-506). This law has four parts that directly affect the provision of technology services to consumers. These parts include: definition, state plan, evaluation, and individual rehabilitation plan.

Definition. The Act defines rehabilitation technology services as:

"the systematic application of technology, engineering methodologies, or scientific principles to meet needs of individuals with handicaps in areas which include education, rehabilitation, employment, transportation, independent living, and recreation".

State Plan. In order for Arkansas to receive funds under this Act, it must submit a state plan to the federal government for approval every four years, with annual revisions. Arkansas submitted its state plan in 1989. As part of the state plan, DRS described how rehabilitation technology services will be provided in the state.

Evaluation for Rehabilitation Services. Under the new law, when a consumer is evaluated for rehabilitation services, his/her potential to benefit from rehabilitation technology services must be assessed. The evaluation must be conducted by a person skilled in rehabilitation technology services to determine if a consumer could become successfully employed.

Individualized Written Rehabilitation Plan (IWRP). All consumers receiving services from DRS receive an IWRP. Much like the IEP, it is the result of the evaluation which outlines a consumer's vocational goals and objectives. It also describes the scope of vocational rehabilitation services that the consumer will receive. When appropriate, a statement is included in the IWRP on how rehabilitation technology services will be used to help the consumer reach his or her vocational rehabilitation goals. Technology can be provided which includes work site modifications, training in the use of specific devices, and maintenance of assistive devices.

Children's Medical Services (CMS)

This state agency provides specialized medical care and rehabilitation for children 0-17 years of age who have physical disabilities and whose families are partially or totally unable to provide needed services. Technology may be provided to consumers as a treatment service, and may include physical and occupational therapy, appliances, and other needed services. The two primary sources of funding for technology used by CMS are described below.

Medicaid. Reauthorized under the *Social Security Act, Budget Reconciliation Act of 1986* (P. L. 99-509), the Medicaid program provides consumers with chronic disabilities who meet the federal Supplemental Security Income (SSI) test of disability, with medical assistance. In order for a device to be considered for Medicaid payment,

it must meet the definition of a "prosthetic device".

Technology may also be funded if it qualifies as:

"Other diagnostic, screening, preventive, and rehabilitative services".

In Arkansas, devices typically purchased through Medicaid include canes, crutches, walkers, manual wheelchairs, manual hospital beds, and side rails for beds. Hearing aids and glasses are covered up until the age of 21.

Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA). The TEFRA program is an excellent source of funding for needed technology for consumers who qualify. TEFRA permits all consumers who are less than 18 years of age and who are at risk for long-term care placement to receive technology benefits. Consumers must have a disability according to the SSI definition and their resources must not exceed $2,000. The consumer's income must be less than $30. TEFRA is specifically designed to allow parents to keep a son or daughter at home rather than placing them in a nursing home or some other type of more restrictive setting.

Early and Periodic Screening, Diagnostic and Treatment (EPSDT)

Among the nine mandated services which all states participating in the federal Medicaid program must provide to Medicaid recipients up to the age of 21 years is the Early Periodic Screening, Diagnostic and Treatment (EPSDT) program. Effective April 1, 1990, the new provision outlined under P. L. 101-239, the *Omnibus Budget Reconciliation Act of 1990*, requires that States treat *any physical or mental problem* identified during such screening and assessment if such "treatment" is coverable under federal Medicaid law even if these treatments are not contained in the State's Medicaid plan.

This provision appears to assure the original Congressional intent of EPSDT which was to assure that all children who are poor have access to and obtain routine health care screenings, assessments and interventions to keep them healthy, and ameliorate any potential impact of a physical or developmental impairment.

Many states have been negligent in fulfilling this spirit and will now be compelled to do so. The implications of this provision for children who are Medicaid beneficiaries suggest that Medicaid coverage for physical therapy, occupational therapy, speech and language/audiology services, and specific assistive devices and equipment may now be provided through EPSDT.

Social Security Amendments of 1972 (P. L. 92-603); Plans for Achieving Self-Support (PASS)

A little known source of funding for persons with disabilities who are pursuing occupational goals or who are attempting to support themselves through work is the PASS provision of the Social Security Amendments of 1972. Although there is no PASS plan developed in Arkansas, other states have developed this funding alternative for persons with disabilities. Under the plan, persons may set aside part of their income for SSI benefits and use these funds to purchase assistive technology, job coaches, or other technology services.

Veterans Administration (VA)

The VA is one of the largest purchasers of assistive devices for consumers with disabilities. Eligibility for services is very clearly specified in a manual available on request from the VA, and benefits are available to veterans and their dependents. A wide range of technology services may be secured from the VA, including aids for persons with blindness, eyeglasses, orthopedic braces, hearing aids, wheelchairs, artificial limbs, car/van adaptive aids, patient lifts, hospital beds, and other medical equipment.

Services are provided based upon each VA Medical Center's commitment to "prosthetic activity". Prosthetics is defined quite broadly by the VA, and includes various services related to selection and payment for technology:

"[Prosthetics is] a broad term used to identify the total concept of the fields of prosthetics, orthotics, sensory aids, aids for the blind, medical equipment, medical supplies, components, and repairs. This term may be used to refer to prosthetic administration, research, education and training, appliances, services, and any other related aspects of the total program".

Using this very broad definition of prosthetics, technology which may be provided to consumers who qualify for VA benefits may be either customized devices or commercial products. The ultimate responsibility for assessing a veteran's technology needs and determining what is most appropriate to meet those needs is the attending physician. Assessments are often conducted within a team framework.

The VA provides technology through four different mechanisms, depending on the equipment needed by the consumer.

On-contract equipment. This includes equipment used in large volume for which the VA has prenegotiated a contract with the manufacturer or contractor. Hearing aids are an example of a high volume technology that is prenegotiated.

Off-contract equipment. This includes equipment needed by the veteran consumer that is not prenegotiated. Devices that would be included are modified products, devices which require ongoing service.

Customization. When equipment cannot be purchased to meet the needs of the veteran consumer, devices may be customized by the VA. Special laboratories in the VA system design, fabricate, and custom fit braces, wheelchairs, and other special devices. They also repair artificial limbs, braces, wheelchairs, and other technologies.

Loan of devices. For major devices whch cost more than $4,000, the VA loans needed technologies to veterans. Such products include Kurzweil Reading Machines, Versa Brailles, Clinitron Beds, respirators, computers, stair glides, low effort steering/braking systems, and other devices.

The VA also has two specialty programs that handle payment for automobile adaptive equipment and home modifications. These services are treated as "benefits" rather than "prosthetics".

Medicare

This federal program is administered under the *Social Security Act, Budget Reconciliation Act of 1986* (P. L. 99-509). It is a federally managed medical insurance plan, regardless of income, for consumers age 65 and older, and for consumers under age 65 who are eligible for Social Security Disability Insurance (SSDI).

Medicare expenditures fall into two categories: hospital insurance (Part A) and supplementary medical insurance (Part B). Coverage under Part A pays for inpatient hospital care, skilled nursing facility care, and home health care. Part B coverage helps pay for physician services, outpatient care, hospital care, some short-term rehabilitation services, therapies, durable medical equipment, laboratory services, and other medical services and supplies.

In order for a service to qualify for Medicare payment, it must meet a 3-pronged test:

1. Is it a replacement of a body part or function?

2. Is it a medical necessity?
3. Is it of reasonable cost?

Although the term 'assistive technology devices' is not specifically used in this legislation, payment may be considered if it meets the definitional criteria test.

Private Insurance

[Note: These materials have been excerpted from: Hofmann, A. (1982). *The Many Faces of Funding*. Mill Valley, CA: Phonic Ear, Inc., pp. 13-14]

Private health insurance is a contract between a company and an insured policyholder. There are many companies in Arkansas through which insurance policies may be obtained, each having flexibility with regard to whether devices and equipment will be covered. What is important for consumers to recognize is that policies issued by these companies are oriented toward *health care*, and *not* changes in the environment or rehabilitation. Services and devices which are directed more toward reducing the level of impairment of the consumer are typically covered more frequently under these policies.

There are four basic types of insurance: hospital, surgical, physician's expense, and major medical insurance. It is ususally under major medical expenses that technology can be provided as "other tmedical services and supplies". When the insurance company puts a policy together, it will draw on various standard packages and phrases. It is much like an automobile dealer who adds on extras, such as air conditioning, stereo radio, and leather interior. These extras are written into the bill-of-sale as an added cost. This is true of the insurance policy also; the policyholder buys a standard medical policy, but if extra coverage is needed, then additional terms (or a rider) are added.

As an example, suppose that an augmentative communication aid is a desirable device that the consumer would like covered under the policy. In the standard package of 'covered charges' used by many insurance companies, the usual wording is *other therapeutic services and supplies*. If the consumer wished to have the coverage expanded to include the communication device, the wording could be changed to read *other therapeutic and prosthetic services and supplies*. By specifically mentioning 'prosthetic services', this insurance company would be able to recognize the communication device, because by their reasoning, a 'prosthesis' is the replacement of an absent part by an artificial substitute. The consumer should bear in mind that just

because this would work with one insurance company, it does not necessarily mean it will be interpreted in the same way by others. The key is the "terms of the policy", and every application stands on its own based on the terms set out in the policy.

Act 303 of 1985 required all insurance groups in Arkansas to offer an option to policyholders for extended coverage for speech, language, and hearing disorders. Companies offer riders to policyholders that would cover these technologies, though this information may not be provided to consumers unless the question is asked, "Do you have a rider that covers loss or impairment of speech, language, or hearing?"

❒ ***Funding terminology.*** In order to secure needed technology, consumers must often work with teams of professionals from various agencies. Each agency, depending upon its funding source, may provide technology to consumers only if certain words, or terminology, are used in completing applications or forms requesting assistance. Consumers must be aware of the terminology that has to be used to get devices. In the process of obtaining information from agencies and organizations which might fund technology, the consumer should request copies of the criteria used to justify the purchase of a particular technology. Key concepts which should be remembered and phrases from the four major federal funding sources for assistive technology are noted below. Each of these funding sources has as a critical ingredient the development and implementation of individual program plans. [Note: These materials have been excerpted from several resources: Morris, M. W. (1990). *Assistive Technology Funding. A User Friendly Workbook.* (Developed in cooperation with the RESNA Technical Assistance Project and United Cerebral Palsy Association, Inc.). Washington, DC: RESNA Technical Assistance Project; and Hofmann, A. (1982). *The Many Faces of Funding.* Mill Valley, CA: Phonic Ear, Inc.]

- **Early Intervention**

  Concept: "specific early intervention services necessary to meet the unique needs of the child"

  Phrases: "functional needs of child related to performance of self-help skills, adaptive behavior and play, and sensory, motor, and postural development"

  "adaptation of the environment selection, design and use of assistive devices to promote the acquisition of functional skills"

  "frequency, intensity, location, and method of delivery of services"

  "case by case basis"

Type service plan: Individual Family Services Plan (IFSP)

- **Special Education**

  Concept: "to benefit from special education"

  Phrases: "the child needs the services to benefit from special education"
  "any supplemental aid or service that would enable a child placed in a regular education environment"
  "related services includes transportation and such develop mental, corrective, and other supportive services as are required to assist a handicapped child to benefit from special education"
  "case by case basis"

  Type service plan: Individual Education Plan (IEP)

- **Vocational Rehabilitation**

  Concept: "employability; securing competitive employment"

  Phrases: "rehabilitation technology services to render an individual with a disability employable"
  "telecommunications, sensory and other technological aids and devices"
  "case by case basis"

  Type service plan: Individual Written Rehabilitation Plan (IWRP)

- **Medicaid**

  Concept: "reduction of physical or mental disability and restoration of the patient to his best possible functional level"

  Phrases: "prosthetic devices"
  "other ...preventative and rehabilitative services"

- **Medicare**

  Concept: "medical necessity prescribed by a physician"

  Phrases: "replacement of all or part of a body organ"

"makes a meaningful contribution to the treatment of an illness or to improvement of a malformed body member"
"durable medical equipment"
"prosthetic devices"

- **Insurance Companies**

  Concept: "condition results from illness or accident; device must be prescribed by physician; must be one of covered charges of policy"

  Phrases: "other therapeutic and prosthetic services and supplies"
  "prosthesis to replace organ or limb"
  "improves condition of patient"

When the consumer or others submit documentation or a claim for funding, the preceding concepts and key phrases should be kept in mind. Those concepts and phrases that fit in the application should be used.

❒ ***Assembling supportive documents.*** To be able to produce an effective supportive document, consumers need to know how to address the funding source requirements. The consumer and others may have to argue some of the stipulations; the consumer may have to do a little researching to address the specifications. Medicare, Medicaid, and Insurance policy definitions will be addressed below. [Note: These materials have been excerpted from: Hofmann, A. (1982). *The Many Faces of Funding*. Mill Valley, CA: Phonic Ear, Inc., pp. 30-31, 33-34]

Medicare

Medicare has a list of major classifications of covered services, supplies, and equipment. Either one or two of them could be applicable to a variety of technologies, including communication aids:

- Rental and purchase of durable medical equipment
- Prosthetic devices

If the consumer knows how Medicare defines these classifications, they can address them with a more positive approach.

Durable medical equipment (DME). DME is covered if it meets the definition

of durable medical equipment and if it is "necessary and reasonable for the treatment of an illness or injury or to improve the functioning of a malformed body member".

Definition of "durable medical equipment":

1. Can withstand repeated use;
2. Primarily and customarily used to serve a medical purpose;
3. Generally is not useful to a person in the absence of illness or injury; and
4. Appropriate for use in the home.

Even if an item is not "primarily and customarily used to serve a *medical purpose*"(2), and/or "generally not useful in the absence of illness or injury" (3), it can still meet the definition of DME if it can be clearly shown that it *serves a therapeutic purpose* in the consumer's case.

Medical purpose may be determined by opinions of local medical organizations and specialists in the field of physical medicine and rehabilitation.

Definition of "medical necessity":

"Evidence exists that the item is included in the physician's course of treatment and a physician is supervising its use".

Definition of "necessary":

"Item can be expected to make a meaningful contribution to the treatment of illness or injury or to improvement of a malformed body member".

Definition of "reasonable" (considerations in determining reasonableness):

1. Is expense disproportionate to the therapeutic benefits?
2. Is the item more costly than an alternative?
3. Does the item serve the same purpose as equipment already available to the beneficiary?

[Note: If (2) above is true, Medicare will *only* pay the cost of the alternative]

Prosthetic device. If a device replaces all or part of an internal body organ or replaces all or part of the *function* of a permanently inoperative or malfunctioning internal body organ, it is a prosthetic device.

Insurance Companies

It can be said that even the insurance industry looks to Medicare for some of its guidelines. An agent for one of the major insurance carriers advised that the medical item must be able to pass three tests [Note: These materials have been excerpted from: Hofmann, A. (1982). *The Many Faces of Funding*. Mill Valley, CA: Phonic Ear, Inc.]

1. Condition of the patient must be a result of illness or accident
2. Must be prescribed by a physician
3. Must be one of the covered charges of the policy

Covered charges are spelled out in a policy with a general category "other therapeutic and prosthetic services and supplies". The test here is:

- The technology must be a prosthesis to replace an organ or limb
- The technology must be curative or improve the condition of the patient

Medicaid

Though the federal government provides from 50% to 80% of the costs of Medicaid programs, the States, except for certain basic services, may provide a number of other services *if they elect to do so*. Because of these variations in benefits offered, the Medicaid programs differ widely across the country. In Arkansas, relatively few technologies are covered by Medicaid. These include: ambulation aids (canes, crutches, walkers); mobility aids (manual wheelchairs); bedroom aids (manual hospital beds, side rails); and sensory aids (hearing aids and glasses up to age 21).

Greater flexibility to obtain funding for technology may exist under one of the specified services that all states participating in the program must provide--early periodic screening, diagnostic and testing (EPSDT). This is a program administered through the Department of Human Services, Division of Economic and Medical Services. All children from 0-21 years of age who enter this program must be treated for any physical or mental problem identified during the screening and assessment process. Through the EPSDT program, technology can be provided to a consumer if it can be demonstrated to be necessary to treat such problems, even if these treatments are not included in the state's Medicaid plan.

Whether the application for funding is directed toward Medicare, Medicaid, Vocational Rehabilitation, Insurance, the educational system, or other funding streams, *demonstration of need* is the same. The medical prescription, the assessment/evaluation, and other supportive documents by the teacher, family, and the consumer

can benefit by focusing on the definitions of Medicare or Medicaid as they apply to the consumer. The law is subject to interpretation by the courts, professionals, legislators, and others. Therefore, the key is to know and understand the definitions and to write the supporting document accordingly.

Consider the preceding definitions. Terminology to keep in mind include:

- Medicare: Medical necessity; necessary
- Insurance: Improve condition of patient
- Medicaid: ...and restoration of the patient to his or her best functional level

There is no set style, and no fixed phrasing of paragraphs. When the physician, speech therapist, occupational therapist, physical therapist, teacher, or others provide a supportive document to include with the claim for funding, they should keep these justifications in mind and apply those that fit in with their profession and their application for the consumer.

Descriptive Literature

No matter what the extent of advertising or dissemination of information of aids for consumers with disabilities, there are still many persons in positions as claims adjustors who are unaware of product existence. Therefore, it is important to include with an application printed literature describing the product. In so doing, the consumer may:

- decrease denials because the agent is unaware of the product; and
- facilitate decision-making because the agent can see and read about the technology; he or she doesn't have to make inquiries or request literature.

Having completed the reading material in the third section of the technology curriculum, the student should complete the questions on the handout provided by the course instructor.

Turn to the next page ☞

Goal 3 Student Evaluation Questions

1. What is the major source of funding for assistive technology provided through the public schools?
   a. Rehabilitation Act Amendments of 1986
   b. Medicaid
   c. Tax Equity and Fiscal Responsibility Act of 1982
   d. Education of the Handicapped Amendments of 1986

2. To be provided with assistive technology through the public schools, what is the key concept regarding technology that must be agreed upon by the student's IEP Committee?
   a. that the student not remove the technology from the school premises
   b. that the student's family have adequate insurance to cover the technology in the event of theft or damage
   c. that the technology help the student to benefit from special education services
   d. that the technology be defined as a "prosthetic device"

3. What is the major source/s of funding for technology provided through Children's Medical Services?
   a. Medicaid
   b. Tax Equity and Fiscal Responsibility Act of 1982
   c. Medicare
   d. 'a' and 'b'
   e. 'a' and 'c'

4. The primary source of funding through which the Division of Rehabilitation Services provides assistive technology to its clients is:
   a. Architectural Barriers Act of 1968
   b. Medicare
   c. Medicaid
   d. Rehabilitation Act Amendments of 1986

5. Which funding stream enables the provision of assistive technology which is used to treat a child's "mental or physical disability"?
   a. private insurance
   b. EPSDT
   c. Education of the Handicapped Amendments of 1986
   d. TEFRA

6. Which of the following mechanisms is not used by the Veterans Administration to provide assistive technology for eligible veterans?

a. customization laboratories
b. equipment loan
c. Medicare
d. prenegotiated contractual equipment from manufacturers

7. Medicare coverage for assistive technology hinges on a 3-pronged test. Which of the following elements is not a part of that test?

a. the device must be of reasonable cost
b. the device must be considered a rehabilitative service
c. the device must be a medical necessity
d. the device must be a replacement of a body part or function

8. Which of the following is not an accurate statement about private insurance and its use in funding assistive technology for persons with disabilities?

a. most insurance companies are oriented towards changes in the environment and rehabilitation rather than health care
b. many insurance companies may cover assistive technology under "other medical services and supplies" in their policies
c. extra coverage for assistive technology may be provided through a "rider" in a policy
d. all policies are unique; each stands on the terms specified in each individual policy

9. The key terminology to be used in obtaining assistive technology through the Division of Rehabilitation Services is:

a. the device will assist the person to benefit from special education
b. the device will enable the person to secure competitive employment
c. the device will help restore the person to their best possible functional level
d. the device is a medical necessity that replaces a missing body part

10. Which of the following statements is not accurate as it pertains to assembling support documents for funding of assistive technology?

a. it is unnecessary to understand technology definitions used by funding sources
b. regardless of the funding source, demonstration of need is the same
c. documents should be written in accordance with funding source definitions
d. there are no standard formats or styles applicable to support documents

Assistive Technology Curriculum

... A Module of Instruction for Students in Arkansas Colleges and Universities

INSTRUCTOR'S SUPPLEMENT

Prepared by

Howard P. Parette, Jr., Ed.D.
Alan VanBiervliet, Ph.D.
University of Arkansas at Little Rock

Partnerships in Planning for State Technology Service Delivery

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Instructor Suggestions

Format. The format for this technology curriculum is designed as a module of instruction having three components, or goal areas that form the core of the curriculum. The information in the first section of the curriculum module focuses on the development of assistive technology advocacy concepts. The second section addresses assistive technology service delivery concepts. The third section focuses on funding concepts.

Each goal section is organized in the following manner. First, objectives for the goal area are specified. Second, the objectives are followed by an information base which corresponds to each objective specified at the beginning of the section. Third, at the end of each goal section, Student Evaluation Questions are presented.

It is suggested that the instructor provide one copy of the curriculum to each student in the course where the curriculum will be used. However, as an alternative, only those sections which have relevance to course objectives might be used. The instructor may have students complete the curriculum module in one, two, or three class sessions as appropriate.

Copies of the Student Evaluation Questions should be made in advance and distributed to students either before or after they have completed a reading assignment in the curriculum. Answers to the questions are provided in this supplement. Alternatively, the instructor may wish to devise his or her own test to use with students as dictated by instructor time, course content and objectives.

Resource Materials. Four Guides have been developed for use with the curriculum, each focusing on a particular target audience: parents, infants, work-age individuals, and the elderly. The use of these Guides as supplementay resources in completing the module of instruction is strongly encouraged to increase the student's information base, though they are not necessary to complete the tests at the end of each goal section. Information regarding how copies of these Guides may be obtained is found on the Curriculum Update sheet at the back if the Instructor's Supplement.

Goal 1 Student Evaluation Questions

Examples of possible student answers are indicated **in bold face.**

1. Briefly define the term "assistive technology" as you understand it. **[e.g., assistive technology encompasses all devices and equipment that can enhance the quality of life for persons with disabilities. It can be purchased off a shelf, modified, or customized.]**

2. If you were asked by a person with a disability to define "assistive technology services", how would you describe them? What are some examples? **[e.g., assistive technology services are those services which relate to evaluation, prescription, use, maintenance, and repair of a particular technology. It would include such services as speech or wheelchair evaluations, prescriptions for a hearing aid or orthopedic brace, training in the use of a computer or augmentative communication device, service call made by a sales representative or recharging a battery for a device, and service work done on a device that is malfunctioning.]**

3. You are discussing the selection of appropriate technology with a person who has a physical disability. This person states that his powered wheelchair, though operative, is not as attractive as a more costly wheelchair. What are some important considerations that you might discuss with this person to help him understand the broader meaning of appropriate technology? **[e.g., Several concerns must be addressed, including whether or not the more expensive wheelchair meets the person's needs, whether a less expensive model which was also attractive is available, and the availability of resources for the purchase of the chair.]**

4. Advocacy has been described as an important skill for persons with disabilities to have in order to ensure the provision of appropriate assistive technology to meet their needs. What are the four key components of this process?

a. **understanding the rights of persons with disabilities**
b. **helping the person with a disability to let professionals know about needs**
c. **keeping records**
d. **follow-up**

5. Though there are many groups in Arkansas which are involved in advocacy activities for persons with disabilities, which of the following appears to be most active? (circle one)

a. Association for Retarded Citizens
b. Arkansas Easter Seal Society
(c) Advocacy Services, Inc.
d. Arkansas Spinal Cord Commission

6. When a person with a disability is told that funding cannot be provided by a particular agency, what are some important questions that should be asked? **[e.g., it is critical to inquire whether the decision was based on state law, state policy, or merely custom or local current practice.]**

Goal 2 Student Evaluation Questions

Correct responses are indicated **in bold face.**

1. A person who has a military-related disability who has needs in the area of independent living would probably be provided with appropriate technology services by which group?
   a. Technology Center for Independence
   b. Arkansas Easter Seal Society
   c. Arkansas Children's Hospital
   d. Veteran's Administration
   (e) 'a' and 'd'

2. An adolescent with a visual impairment who desires to have hands-on experiences in using technologies designed for such persons might best receive this type of service from:
   a. Veteran's Administration
   (b) ARTAP Technology Access Center-Visual Impairments
   c. Division of Rehabilitation Services
   d. Arkansas Easter Seal Society

3. A person desiring to obtain information about IBM or Apple products might contact which of the following?
   a. ARTAP Technology Information System
   b. Arkansas Easter Seal Technology Resource Center
   c. Division of Rehabilitation Services
   (d) two of the above
   e. none of the above

4. Which of the following is *not* a component of ARTAP?
   a. User-to-User network
   b. Technology for Independence
   c. Assistive Listening Devices Center
   (d) Low Interest Loan Program
   e. Learning Technology Access Center

5. A 19-year-old person with a learning disability desiring to attend college might best receive technology-related services from which group?

(a) Harvey and Bernice Jones Learning Center
b. Arkansas Children's Hospital
c. BRI Spinal Cord Injury Program
d. New Medico Rehabilitation Center
e. none of the above

6. A preschool-age child with cerebral palsy having needs for a communication device might obtain evaluation and prescription services from which group/s?

a. Arkansas Easter Seal Society
b. Division of Rehabilitation Services
c. Arkansas Children's Hospital
d. Office of Disabled Student Services
(e) 'a' and 'c'

7. What is the importance of the evaluation process in obtaining needed technology for persons with disabilities? **[e.g., the evaluation process is important because it helps professionals to identify the needs of a person with a disability, which, in turn, helps them to select technology that will meet the person's needs]**

8. Which of the following would *not* be an important personal factor in the selection of appropriate technology?

(a) Real cost of the technology
b. Location of services
c. Job aspirations of the person with a disability
d. Home and family activities

9. Which of the following would *not* be an important technology factor in the selection of appropriate technology?

a. Usefulness of the technology with other devices
b. Availability of funding sources
c. Range of technologies available
d. The person's ability to use the technology
(e) How the person feels about the technology

Goal 3 Student Evaluation Questions

Correct responses are indicated **in bold face.**

1. What is the major source of funding for assistive technology provided through the public schools?
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   b. Medicaid
   c. Tax Equity and Fiscal Responsibility Act of 1982
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Curriculum Update

Three additional technology curricula have been developed and are designed for use with parents, consumers, and professionals. Supplementary publications which may be used with these curricula focus on four target audiences of persons with disabilities: infants, parents and students, the work age population, and the elderly. One supplementary publication titled *Assistive Technology and Disabilities...A Guide for Parents and Students* is currently available and is being distributed in Arkansas. Three other documents will be available by mid-summer. Information regarding how the curricula and the other supplementary publications may be ordered can be obtained by writing or calling the following **before August 1, 1990**:

Arkansas Technology Information System (ARTIS)
Arkansas Division of Rehabilitation Services
P. O. Box 1437/Slot 2300
Little Rock, AR 72203
(800) 828-2799 or (501) 371-3566

After August 1, 1990, ARTIS will be relocating at the following address:

Arkansas Technology Information System (ARTIS)
2201 Brookwood, Suite 117
Little Rock, AR 72202
(800) 828-2799 or (501) 371-3566